

REMARKS

Claims 1-71 are pending, of which claims 1, 25, 48, 54, 55, 56, and 61, are independent. In this Response, Applicants amend claims 1, 25, and 48 without prejudice. Applicants add new claims 70 and 71. Applicants respectfully request reconsideration of the outstanding rejections and passage of the claims to allowance.

I. Summary of Rejections

Claims 48-53 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.

Claims 1-3, 5-9, 17-22, 24-27, 29-33, 41-46, and 48-69 were rejected under 35 U.S.C. §103(a) as being unpatentable over MathWorks Simulink® “Dynamic System Simulation for MATLAB,” 1997 (hereinafter “MathWorks”) in view of Official Notice taken.

Claims 4, 10-16, 23, 28, 34-40, and 47 were rejected under 35 U.S.C. §103(a) as being unpatentable over MathWorks Simulink® (1997) (“MathWorks”) as applied to claim 1 above, and further in view of Fenlason’s “GNU gprof” (1998).

Applicants respectfully traverse the rejections.

II. Rejections under 35 U.S.C. §112, First Paragraph

In the Office Action, claims 48-53 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Applicants respectfully traverse the rejection of claims 48-53.

The Examiner argues that the term “computer-based model” is unclear, because it is uncertain as to whether the Applicants mean “a model of a computer, or a model being executed by a computer.” Applicants amend claim 48 to recite “a computer-implemented method,” and further amend claim 48 to eliminate “computer-based” before “model.” This amendment clarifies that the method itself is computer-implemented, and thus the model is being executed by a computer.

The Examiner further argues that the term “domain” is unclear as it is used in claim 48. Applicants have replaced the term “domain” in claim 48 with the term “environment.” Support for this amendment can be found throughout the Application, and particularly at page 8, lines 22-28. Applicants believe that this amendment addresses the Examiner’s concerns.

In light of the above, Applicants submit that claims 48-53 are enabled, and therefore respectfully request that the Examiner withdraw the 35 U.S.C. §112, first paragraph rejection of claims 48-53.

III. Rejections under 35 U.S.C. §103(a)

A. Claims 1-3, 5-9, 17-22, and 24

In the Office Action, claims 1-3, 5-9, 17-22, and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over MathWorks Simulink® “Dynamic System Simulation for MATLAB,” 1997 (hereinafter “MathWorks”) in view of Official Notice taken. Applicants respectfully traverse the rejection.

Applicants’ claim 1 recites,

1. A method comprising the steps of:
 - providing a graphical debugger interfaced with a model view of a model being executed, said model comprising a block that includes a plurality of execution methods, said graphical debugger having debug information related to the execution of said model, ***said debug information indicating order of execution of said plurality of execution methods for said block and a start time or a stop time of said plurality of execution methods for said block that are executed during the execution of said model;*** and
 - outputting said debug information to a user, ***said debug information allowing the user to determine proper or improper operation for at least a subset of said plurality of execution methods that are executed in said block during the execution of said model.***

MathWorks fails to disclose or suggest ***said debug information indicating order of execution of said plurality of execution methods for said block and a start time or a stop time of said plurality of execution methods that are executed during the execution of said model,*** as

present in claim 1. The debug information given in MathWorks relates to the blocks themselves and the state of the entire system – not the execution methods within blocks. Thus, MathWorks is focused a different level of granularity than claim 1. MathWorks does not disclose or suggest ***said debug information indicating the order of execution of said plurality of execution methods for said block***, as present in claim 1. The amendment to claim 1 specifies that the execution methods are for a block. Further, what is claimed includes the display of the block's ***execution methods***, a feature not disclosed by MathWorks.

The Examiner states that “MathWorks implies but does not make explicit that one or more blocks includes a plurality of execution methods.” The combination proposed by the Examiner still does not result in the method of claim 1. Even if MathWorks disclosed that one or more blocks includes a plurality of execution methods (Applicants respectfully disagree with the Examiner's statement), it still is not obvious to ***present the order of execution methods***, as present in claim 1.

Still further, MathWorks fails to disclose or suggest ***a start time or a stop time of said plurality of execution methods***, as present in claim 1. In fact, MathWorks is silent as to such a start time or a stop time.

MathWorks does not disclose or suggest yet other features of claim 1. For example, MathWorks does not disclose or suggest ***said debug information allowing the user to determine proper or improper operation for at least a subset of said plurality of execution methods that are executed in said block during the execution of said model***. The Examiner asserts that MathWorks discloses this feature, but does not provide any support for that assertion (Office Action at 4). Applicants have nevertheless amended claim 1 to further clarify that the execution methods are executed ***in said block***. As noted above, MathWorks is focused on blocks, and not execution methods within a block. Therefore, MathWorks is silent about debug information regarding the operation of ***at least a subset of said plurality of execution methods***.

For at least the reasons given above, MathWorks does not disclose or suggest each and every element of independent claim 1. Claims 2-3, 5-9, 17-22, and 24 depend from claim 1 and, as such, include each and every element of claim 1. Thus, MathWorks does not disclose or suggest each and every element of claims 2-3, 5-9, 17-22, and 24. Therefore, Applicants

respectfully request that the 35 U.S.C. §103(a) rejection of claims 1-3, 5-9, 17-22, and 24 be withdrawn.

B. Claims 25-27, 29-33, 41-46, and 48-69

In the Office Action, claims 25-27, 29-33, 41-46, and 48-69 were rejected under 35 U.S.C. §103(a) as being unpatentable over MathWorks in view of Official Notice taken. Applicants respectfully traverse the rejection.

1. Claims 25-27, 29-33, and 41-46

Applicants' claim 25 recites,

25. A medium for use in a modeling and execution environment on an electronic device, said medium holding executable instructions on the electronic device for performing an execution method, said method comprising the steps of:
providing a graphical debugger interfaced with a model view of a model being executed, said model comprising a block that includes a plurality of execution methods, said graphical debugger having debug information related to the execution of said model, *said debug information indicating at least one of the order of the execution of a plurality of execution methods in said model and a start time or a stop time of at least one execution method executed during the execution of said model*; and
outputting said debug information to a user, *said debug information allowing the user to determine proper or improper operation for at least a subset of said plurality of execution methods for the block that are executed during the execution of said model*.

MathWorks does not disclose or suggest *said debug information indicating at least one of the order of the execution of a plurality of execution methods in said model and a start time or a stop time of at least one execution method executed during the execution of said model*, nor does MathWorks disclose or suggest *said debug information allowing the user to determine proper or improper operation for at least a subset of said plurality of execution methods for the block that are executed during the execution of said model*, as present in claim 25.

As described above with reference to claim 1, MathWorks provides a different level of granularity than claim 25. MathWorks focuses on blocks rather than execution methods, and does not disclose or suggest indicating the execution order of multiple execution methods within a block, the start and stop time of multiple execution methods operating in a block, or allowing a user to determine proper or improper operation for multiple execution methods operating inside a block. Thus, MathWorks does not disclose or suggest all of the elements of claim 25.

Claims 26-27, 29-33, and 41-46 depend from claim 25, and thus include each and every element of claim 25. In light of the above arguments, Applicants respectfully request that the 35 U.S.C. §103(a) rejection of claims 25-27, 29-33, and 41-46 be withdrawn.

2. Claims 48-53

Applicants' claim 48 recites,

48. A computer-implemented method, comprising:
identifying a first execution method operating in a first environment of a computer-based modeling application that executes a model, where the first environment is one of a text-based environment, a time-based block diagram, a state based block diagram, or a data-flow diagram;
identifying a second execution method operating in a second environment, where the second environment differs from the first environment;
debugging the first execution method and the second execution method while the computer-based model operates on behalf of a user; and
generating output information for the user or for a destination, ***the output information identifying when the first execution method or the second execution method are operating, identifying an operation performed by the first execution method or the second execution method at a determined location in the first execution method or the second execution method, or identifying an error related to the first execution method or the second execution method during execution of the computer-based model.***

MathWorks does not disclose or suggest ***the output information identifying when the first execution method or the second execution method are operating, identifying an operation performed by the first execution method or the second execution method at a determined location in the first execution method or the second execution method, or identifying an error***

related to the first execution method or the second execution method during execution of the computer-based model, as present in claim 48.

In the MathWorks debugger, a user can display a model's block execution order (MathWorks at page 12-16), but they cannot identify when an execution method is operating. In the MathWorks debugger, users can set breakpoints at the beginning or end of a block, thus allowing them to identify when an operation is performed by a block (MathWorks at page 12-9), but users cannot identify an operation performed by an execution method at a determined location in the execution method. In MathWorks, users can step through the simulation block-by-block (MathWorks at page 12-5) and thus identify block-level errors; however, MathWorks does not allow a user to identify an error related to the first execution method or the second execution method during execution of the computer-based model. In fact, MathWorks is silent as to these features. Thus, MathWorks does not disclose or suggest all the elements of claim 48.

Claims 49-53 depend from claim 48, and thus include each and every element of claim 48. In light of the above arguments, Applicants respectfully request that the 35 U.S.C. §103(a) rejection of claims 48-53 be withdrawn.

3. Claim 54

Claim 54 recites,

54. A method, comprising:

receiving information about a first execution method and a second execution method on behalf of a graphical model comprising blocks, where at least one of the blocks includes the first execution method and at least one other execution method or the second execution method and the at least one other execution method, where the first execution method or the second execution method are related to one or more of the blocks;

identifying at least a portion of the first execution method or the second execution method when the first execution method or the second execution method are running, respectively;

obtaining information about the running of the first execution method or the second execution method using the identifying; and

providing debugging information to a user via a display or providing debugging information to a destination device, *the debugging information identifying the first execution method or the second execution method and*

information about the first execution method or the second execution method, respectively.

MathWorks does not disclose or suggest *identifying at least a portion of the first execution method or the second execution method when the first execution method or the second execution method are running, respectively*, nor does MathWorks disclose or suggest *obtaining information about the running of the first execution method or the second execution method using the identifying*, nor does MathWorks disclose or suggest *the debugging information identifying the first execution method or the second execution method and information about the first execution method or the second execution method, respectively*, as present in claim 54.

MathWorks does not identify a portion of an execution method when the execution method is running. Instead, MathWorks identifies which blocks are being executed (MathWorks at page 12-16). MathWorks does not obtain information about the running of first execution methods using that identification, but rather obtains information on overall system states and individual block states (MathWorks at pages 12-12 to 12-14). And MathWorks does not provide debugging information identifying execution methods, but rather debugging information pertaining to block execution (MathWorks at page 12-16).

Therefore, MathWorks does not disclose each and every element of claim 54. Applicants respectfully request that the 35 U.S.C. §103(a) rejection of claim 54 be withdrawn.

4. Claim 55

Claim 55 recites,

55. A method, comprising:
- identifying a first root method comprising one or more child methods, the first root method related to a graphical modeling application;
 - identifying a second root method related to the graphical modeling application;
 - running the first root method and the second root method in a graphical debugger to obtain information about the operation of the first root method or the second root method; and
 - displaying a debugging result to a destination, *the debugging result comprising visual identifiers related to the operation of the first root method, the one or more child methods or the second root method, error information*

about the first root method, the one or more child methods or the second root method, an execution result for the first root method, the one or more child methods or the second root method, or status information related to the first root method, the one or more child methods or the second root method.

MathWorks does not disclose or *the debugging result comprising visual identifiers related to the operation of the first root method, the one or more child methods or the second root method, error information about the first root method, the one or more child methods or the second root method, an execution result for the first root method, the one or more child methods or the second root method, or status information related to the first root method, the one or more child methods or the second root method*, as present in claim 55.

MathWorks discusses blocks and not root methods. Thus, MathWorks does not give a debugging result with visual identifiers related to the operation of root or child methods, but instead gives visual identifiers related to the execution of blocks (MathWorks at page 12-16). MathWorks does not disclose or suggest displaying status information related to root or child methods, but can display status information related to blocks and overall system states (MathWorks at pages 12-12, 12-14, and 12-16).

Thus, MathWorks does not disclose or suggest all the elements of claim 55. Therefore, Applicants respectfully request that the 35 U.S.C. §103(a) rejection of claim 55 be withdrawn.

5. Claims 56-60

Claim 56 recites,

56. A method for implementing a user interface for debugging a graphical model, the method comprising:

displaying a hierarchy comprising information about a first root method, one or more child methods related to the first root method, or a second root method, the hierarchy displaying information about the first root method, the one or more child methods, or the second root method in an arrangement representing a relationship among the first root method, the one or more child methods, or the second root method; and

displaying an indicator on the hierarchy proximate to the first root method, the one or more child methods, or the second root method, the indicator denoting a status of the first root method, the one or more child

methods, or the second root method, where the status indicates whether the first root method, the one or more child methods, or the second root method are operating according to determined parameters.

MathWorks does not disclose or suggest *displaying a hierarchy comprising information about a first root method, one or more child methods related to the first root method, or a second root method, the hierarchy displaying information about the first root method, the one or more child methods, or the second root method in an arrangement representing a relationship among the first root method, the one or more child methods, or the second root method*, nor does MathWorks disclose or suggest *displaying an indicator on the hierarchy proximate to the first root method, the one or more child methods, or the second root method, the indicator denoting a status of the first root method, the one or more child methods, or the second root method, where the status indicates whether the first root method, the one or more child methods, or the second root method are operating according to determined parameters*, as present in claim 56.

Instead of displaying a hierarchy of root and child methods, MathWorks displays a block execution order. For instance, compare MathWorks at page 12-16, showing the hierarchy of MathWorks, with Figure 18A of the Application, which depicts the parent-child hierarchy. The block execution order of MathWorks is silent as to with root or child methods.

Thus, MathWorks does not disclose or suggest all the elements of claim 56. Claims 57-60 depend from claim 56, and thus include every element of claim 56. In light of the above arguments, Applicants respectfully request that the 35 U.S.C. §103(a) rejection of claims 56-60 be withdrawn.

6. Claims 61-69

Claim 61 recites,

61. A method for debugging operation of a graphical icon, the method comprising:
identifying a plurality of execution methods for the graphical icon using a plurality of regions related to the graphical icon;
displaying information about a first one of the plurality of execution

methods in a first one of the plurality of regions or information about a second one of the plurality of execution methods in a second one of the plurality of regions; and

associating the information in the first one of the plurality of regions or information in the second one of the plurality of regions with a graphical debugger to provide a user with debugging results for the first one of the plurality of execution methods or the second one of the plurality of execution methods, the debugging results allowing the user to identify desirable operations performed on behalf of the graphical icon or undesirable operations performed on behalf of the graphical icon.

MathWorks does not disclose or suggest *identifying a plurality of execution methods for the graphical icon using a plurality of regions related to the graphical icon*, nor does MathWorks disclose or suggest *displaying information about a first one of the plurality of execution methods in a first one of the plurality of regions or information about a second one of the plurality of execution methods in a second one of the plurality of regions*, as present in claim 61.

MathWorks does not display information about execution methods. MathWorks obtains information only on individual block states and overall system states (MathWorks at pages 12-12 to 12-14). Thus, MathWorks does not identify execution methods for a graphical icon, as present in claim 61. MathWorks is also silent as to displaying information about execution methods in a plurality of regions, as present in claim 61.

Thus, MathWorks does not disclose or suggest all the elements of claim 61. Claims 62-69 depend from claim 61, and thus include every element of claim 61. In light of the above arguments, Applicants respectfully request that the 35 U.S.C. §103(a) rejection of claims 61-69 be withdrawn.

C. Claims 4, 10-16, 23, 28, 34-40, and 47

Claims 4, 10-16, 23, 28, 34-40, and 47 were rejected under 35 U.S.C. §103(a) as being unpatentable over MathWorks Simulink® (1997) (“MathWorks”) as applied to claim 1 above, and further in view of Fenlason’s “GNU gprof” (1998). Applicants respectfully traverse the rejection.

Claims 4, 10-16, 23, 28, 34-40, and 47 depend from claim 1 and, as such, include each and every element of claim 1. The Examiner adds GNU gprof to MathWorks to provide the specific limitations recited by these dependent claims, but does not assert that GNU gprof discloses the features of claims 1 and 25, from which they depend. For example, GNU gprof does not disclose or suggest features of claim 1, such as *providing a graphical debugger interfaced with a model view of a model being executed, said model comprising a block*, nor does GNU gprof disclose or suggest *said debug information indicating order of execution of said plurality of execution methods for said block and a start time or a stop time of said plurality of execution methods that are executed during the execution of said model*.

GNU gprof is a profiler used to determine which parts of a program are taking the most execution time (GNU gprof at 1). GNU gprof is used to profile programs, not models including blocks. Thus, GNU gprof does not disclose or suggest a debugger interfaced with a model view of a model being executed, said model comprising *a block*, nor does GNU gprof provide debug information indicating the order of execution of execution methods *for blocks*. Because GNU gprof does not disclose execution methods in blocks, a feature also missing from MathWorks, GNU gprof does not remedy the shortcomings of MathWorks with respect to at least the above-mentioned features of claim 1.

For at least the reasons presented above, MathWorks and GNU gprof, alone or in any reasonable combination, do not disclose each and every element of independent claim 1. Claims 4, 10-16, 23, 28, 34-40, and 47 depend from claim 1 and, as such, include each and every element of claim 1. Therefore, MathWorks and GNU gprof do not disclose each and every element of claims 4, 10-16, 23, 28, 34-40, and 47. Applicants therefore respectfully request that the 35 U.S.C. §103(a) rejection of claims 4, 10-16, 23, 28, 34-40, and 47 be withdrawn.

IV. New Claims 70 and 71

Applicants have added new claims 70 and 71. Applicants believe that these newly added claims are patentable at least because the cited art fails to disclose or suggest debug information regarding the execution order of execution methods for multiple blocks, and because claims 70 and 71 depend on claims 1 and 25, respectively.

Application No.: 10/733,788

Docket No.: MWS-106RCE

CONCLUSION

In view of the above amendment, Applicants believe the pending application is in condition for allowance. If the Examiner feels that further discussion would expedite the proceedings, the Examiner is urged to call Applicants' attorney at the phone number listed below.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. MWS-106RCE. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: February 15, 2008

Respectfully submitted,

Electronic signature: /Kevin J. Canning/
Kevin J. Canning
Registration No.: 35,470
LAHIVE & COCKFIELD, LLP
One Post Office Square
Boston, Massachusetts 02109-2127
(617) 227-7400
(617) 742-4214 (Fax)
Attorney/Agent For Applicant